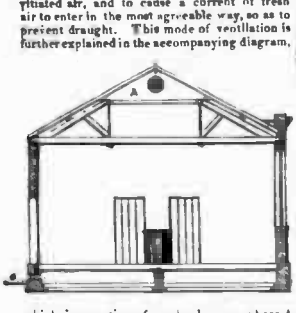
ON VENTILATING AND WARMING SCHOOL-ROOMS.

TO THE EDITOR OF "THE BUILDER."

THE proper ventilation and warmth of school-rooms ranks next in importance to the sufficient admission of light, both as regards the health of the children, as well as in an economical point of view. The ventilation of school-rooms is a subject of the utmost moment, but which, in very many instances, is grossly and often totally neglected; the only apertures by which a current of air can enter, or the vitiated part escape, being by the windows and door, a mode which, under the best circumstances, only very partially, performs the object, and in cold or rainy weather becomes totally useless; thereby producing injurious and unpleasant effects on the teacher and children.

It is a well-known fact that, in a school-room occupied by a number of children, the atmosphere becomes specifically lighter than the surrounding parts, in consequence of the warmth of their bodies and by the heat of the fire, and which, therefore, has a tendency to rise and escape through the roof, while the cold air outside presses in to supply the deficiency. All that is necessary, therefore, to be done to insure perfect ventilation in a school-room, is to provide apertures in the gable of the roof, with valves for the outlet of vitiated air, and to cause a current of fresh air to enter in the most agreeable way, so as to prevent draught. This mode of ventilation is further explained in the accompanying diagram,



which is a section of a school-room, where A is the opening in the gabel, furnished with a valve, having a cord for the purpose of opening or closing it, and B the opening in the wall, so as to admit air under the room, the floor of which is provided with openings and valves to supply the school-room with air to any required amount. If the floor be of asphalte, &c., a brick flue must pass under it to the air-valves. For warming school-rooms, common fire-places may possess some advantages, but these are more than counterbalanced by the disadvantages which must always attend them; two-thirds of the heat generated is carried up the chimney and wasted, and the remainder being confined to a short distance from the fire, leaves the remote parts of the room quite cold; added to this, a common fire consumes a great quantity of air, thereby occasioning draughts to enter by all the crevices, the effect of which being injurious to health, the trouble and annoyance arising from continually stirring and supplying the fire with fuel, the risk of smoky chimneys, and the almost insurmountable difficulty of avoiding them in the sudden changes of wind and temperature, render their use, when practicable, to be avoided, especially as a stove answers the purpose much more effectually. To warm a school-room with a stove, if placed near a wall the flue may be carried up in the brickwork about 3 inches square, but if in the middle of the room, an iron pipe must be fixed so as to communicate with the exterior. The advantages arising from the use of a stove are, that it requires fuel but once a day, the fire being kept always alight; the small quantity of air required precludes the possibility of draught; the temperature, by means of a thermometer placed against the wall of the room, may be kept at any requisite degree; the prime cost is less; it consumes much less fuel than a common fire, and all risk of accident to the children is avoided. A small vase of water with a perforated cover should be placed on the stove, and one of the air-valves in the floor should be quite close to it, the others may be equidistant between the stove and end walls.

This is the best and most simple mode of ventilating and warming schools, and it behoves all who have the duty of forming new schools devolving on them, to give the proper ventilation of the rooms their most serious attention, as it produces not only corresponding good effects on the children's health, but also in many other important branches.

C. D.

[Supposing our correspondent means by "a stove" some kind of inclosed fire-place, as Arnott's, or an offset of the old German stove, we beg to remind him of the frequent banishment of all manner of iron stoves from buildings, from the head-ache and other inconvenience produced by the foul air reigning wherever such stoves are used, often compelling a recurrence to the old-fashioned, wholesome common open grates, with all their waste and weakness of operation. A century and a half ago, John Evelyn recommended, even in the heating of a green-house, the avoidance of iron, and the use of baked earth. Perhaps the French apparatus denominated the "*Calorifère*" (whereby a current of external air is introduced through heated pipes of terra cotta), makes the nearest approach to the wholesomeness of the hot-water warming-apparatus in its best form. We very seldom suffer naturally from head-ache, yet cannot stand against the noxious fumes generated by any of the race of iron pipe-stoves, Arnott's included.—ED.]

FIRES IN LONDON.

IMPORTANT EXPERIMENTS.

A GREAT many proposals having lately been urged upon government with the view of establishing in London, and all the large towns throughout the provinces, a system for the more speedy extinction of fires, viz., by attaching hose or leathern pipes, with branches, to the plugs and mains laid down in the streets, so that the water might be thrown to a sufficient altitude by its own pressure, without the aid of fire-engines, an experiment a few days since was made by Mr. Quick, the engineer of the Southwark Water Company, in order to ascertain how far it could be made applicable. The company not having the necessary apparatus to make the trial, the assistance of the Fire Brigade was granted to carry out the experiment, Mr. Braidwood, the superintendent of the force, being present on the occasion, the particulars of which will be found to be highly important. The report, which is extremely voluminous, states that it took place on the morning of Thursday last, between the hours of 4 and 9 o'clock, Mr. Quick selecting Old Gravel-lane, Union-street, and Tooley-street, as the most favourable spots to carry on the operations. During the whole period the pressure of water at the company's works at Battersea was kept at 130 feet, and every service-pipe or outlet was kept shut, so that the trial should be fairly made. The first experiment took place in Union-street, by having lengths of riveted leathern hose (two inches and a half in diameter and 40 feet long) attached to six standcocks, placed into plugs, all situate within the space of about 700 yards. The water was conveyed from the head at Battersea, through 5,300 yards of iron piping, consisting of 4,250 yards of 20-inch main, 550 yards of 15-inch main, and 500 yards of 9-inch main. On one standcock being opened, the jet of water thrown from the copper branch (with 1-inch hose pipe on) reached an elevation of 50 feet, and the delivery was at the rate of 100 gallons per minute. The next object sought was to ascertain the quantity of water that could be obtained from the plug. The branch-pipe for this purpose was taken off, but the length of hose remained on. The delivery was then found to be 260 gallons per minute, shewing that nearly two-thirds of the water was lost by confining it to a small jet. Had the standcock and hose been taken away, there would have been quite sufficient water to supply three fire-engines, each delivery being equal to the discharge from the first standcock. Another was then opened, and the jet from the former was reduced to 45 feet elevation. Other two were added, and the jet of the first was then 40 feet; and on three being opened, the jet from the first rose to 35 feet. The fourth was opened, and the jet of the first decreased to 30 feet. The fifth was then brought into play (viz. six in all), and the jet from the first only measured 27 feet, fully shewing that there was a regular gradation in the height of the jets, according to the number opened. The next trial was made in Tooley-street, the standcocks being used as in the former case. Some slight difference was observed in the elevation to which the jets were thrown, the first gaining 60 feet; and when the whole were opened, the height was reduced to 40 feet, the delivery of the water being at the rate of 70 gallons per minute. Another trial was then made in a street leading into Tooley-street, where there was only a service-pipe laid down, called a 5-inch main. The first standcock threw a jet of 40 feet, and on the others being opened, the one furthermost from the first started only emitted a jet of 24 feet, and a delivery of 58 gallons.

COMPARATIVE TABLE OF FRENCH METRES REDUCED TO ENGLISH FEET. 1844.

(*From Letaroullly.*)

Metrical Measures.		English Feet.	
Metres.	Met.	Ft.	In.
1 is written	1.000	3	3.37
2	2.000	6	6.74
3	3.000	9	10.11
4	4.000	13	1.48
5	5.000	16	4.85
6	6.000	19	8.22
7	7.000	22	11.59
8	8.000	26	2.96
9	9.000	29	6.33
10	10.000	32	9.70
Decimètre.			
1 is written	0.100	0	3.94
2	0.200	0	7.87
3	0.300	0	11.81
4	0.400	1	3.75
5	0.500	1	7.69
6	0.600	1	11.62
7	0.700	2	3.56
8	0.800	2	7.50
9	0.900	2	11.43
10	1.000	3	3.37
Centimètre.			
1 is written	0.010	0	0.39
2	0.020	0	0.79
3	0.030	0	1.18
4	0.040	0	1.58
5	0.050	0	1.97
6	0.060	0	2.36
7	0.070	0	2.76
8	0.080	0	3.15
9	0.090	0	3.54
10	0.100	0	3.94
Millimètre.			
1 is written	0.001	0	0.04
2	0.002	0	0.08
3	0.003	0	0.12
4	0.004	0	0.16
5	0.005	0	0.20
6	0.006	0	0.24
7	0.007	0	0.28
8	0.008	0	0.31
9	0.009	0	0.35
10	0.010	0	0.39

NORWICH.—The erection of the observatory on the Cathedral for the purpose of connecting this portion of the kingdom with the great system of triangles, which has now been carried over nearly the entire surface of England and Wales, afforded an opportunity for meteorological observations not to be neglected, and accordingly a series of experiments were commenced by the permission of Lieut. Da Costa of the Royal Engineers, under the direction and management of the Rev. A. Bath Power. The bearings were taken of no fewer than 194 towers, but only 58 of them were identified.

IPSWICH.—The usual monthly meeting of the Dock Commissioners was held last week at the Town-hall. The chairman read the minutes of the committee of management, and from them it appeared that the Charity Trustees had been authorized to build a quay in front of the charity land, abutting on the new channel, under the direction of the engineer; and that the engineer had been directed to procure three drags and six life-lines, for the assistance of persons who may have the misfortune to get into the dock.